

Amendments to the Claims

The following listing of claims replaces all prior versions of the claims and all prior listings of the claims in the present application.

1-25. (canceled)

26. (new) A method for producing a tyre for a vehicle wheel, comprising:
disposing a carcass structure, having a cylindrical-sleeve shape, on a drum having a distal half and a proximal half;
disposing a belt structure coaxially around the carcass structure;
moving the distal and proximal halves mutually close, from a building condition to a shaping condition, until an intermediate portion of the carcass structure contacts an inner surface of the belt structure; and
transferring the drum, in the shaping condition, to a vicinity of at least one application unit;
wherein the distal and proximal halves are both carried by a support structure,
wherein during moving the distal and proximal halves mutually close, the proximal half maintains a fixed axial position with respect to the support structure,
wherein moving the distal and proximal halves mutually close causes radial expansion of the intermediate portion of the carcass structure, and

wherein the at least one unit applies at least one elongated element of elastomeric material, in circumferential coils, to form at least one component of the tyre external to the carcass structure.

27. (new) The method of claim 26, wherein moving the distal and proximal halves mutually close comprises:

translation of the support structure toward the distal half; and

translation of the distal half toward the support structure;

wherein the translation of the distal half toward the support structure is proportional to the translation of the support structure with respect to a median plane between the distal and proximal halves.

28. (new) The method of claim 27, wherein the translation of the distal half toward the support structure is twice as great as the translation of the support structure with respect to the median plane between the distal and proximal halves.

29. (new) The method of claim 26, wherein moving the distal and proximal halves mutually close comprises:

translation of the belt structure toward the support structure; and

translation of the distal half toward the support structure;

wherein the translation of the distal half toward the support structure is substantially proportional to the translation of the belt structure toward the support structure.

30. (new) The method of claim 29, wherein the translation of the distal half toward the support structure is twice as great as the translation of the belt structure toward the support structure.

31. (new) The method of claim 27, wherein the translation of the support structure is carried out through an actuating unit carrying the support structure.

32. (new) The method of claim 26, further comprising:
carrying out an angular-correction oscillation of the support structure to dispose a geometric axis of the drum in a preset orientation;
wherein the preset orientation is coincident with a geometric axis of the belt structure.

33. (new) The method of claim 32, further comprising:
acquiring identification data of the drum;
selecting, from a plurality of preset angular-correction values, a value that depends on the acquired identification data; and
carrying out the angular-correction oscillation in conformity with the selected value.

34. (new) The method of claim 32, further comprising:
detecting an orientation of the geometric axis of the drum;
comparing the detected orientation with a value of the preset orientation; and

carrying out the angular-correction oscillation when the detected orientation diverges from the value of the preset orientation by more than a predetermined tolerance threshold.

35. (new) The method of claim 26, wherein the at least one component comprises a tread band, and

wherein the at least one unit applies the at least one elongated element at a position radially external to the belt structure.

36. (new) The method of claim 26, wherein the at least one component comprises sidewalls, and

wherein the at least one unit applies the at least one elongated element at a position axially external to the carcass structure.

37. (new) The method of claim 26, wherein disposing the carcass structure on the drum comprises:

assembling components of the carcass structure on the drum.

38. (new) The method of claim 26, wherein before disposing the carcass structure on the drum, the drum is transferred to a feeding station for components of the carcass structure.

39. (new) An apparatus for producing a tyre for a vehicle wheel, comprising:
a drum having a distal half and a proximal half;

transfer devices to dispose a belt structure coaxially around a carcass structure on the drum, the carcass structure having a cylindrical-sleeve shape; translation devices to move the distal and proximal halves mutually close, from a building condition to a shaping condition; and at least one unit for applying at least one elongated element of elastomeric material, in circumferential coils, to form at least one component of the tyre; wherein the distal and proximal halves are both carried by a support structure, and wherein the proximal half is axially fixed with respect to the support structure.

40. (new) The apparatus of claim 39, further comprising:
a feeding station to supply components of the carcass structure;
wherein the feeding station interacts with the drum to form the carcass structure on the drum.

41. (new) The apparatus of claim 39, further comprising:
an actuating unit carrying the support structure; and
a control unit operating on the actuating unit and the translation devices;
wherein the control unit causes:
translation of the support structure toward the distal half; and
simultaneous translation of the distal half toward the support structure; and

wherein the translation of the distal half toward the support structure is proportional to translation of the support structure with respect to a median plane between the distal and proximal halves.

42. (new) The apparatus of claim 41, wherein the control unit is programmed so that the translation of the distal half toward the support structure is twice as great as the translation of the support structure with respect to the median plane between the distal and proximal halves.

43. (new) The apparatus of claim 41, wherein the actuating unit comprises a robotized arm supporting the drum.

44. (new) The apparatus of claim 43, wherein the drum is removably associated with the robotized arm.

45. (new) The apparatus of claim 43, further comprising:
a control unit operating on the actuating unit to submit the drum to an angular-correction oscillation to dispose a geometric axis of the drum in a preset orientation;
wherein the preset orientation is coincident with a geometric axis of the belt structure.

46. (new) The apparatus of claim 45, wherein the control unit comprises:
a memory containing a plurality of angular-correction values each related to identification data of a drum associated with the robotized arm;

an acquisition block to acquire the identification data of the drum associated with the robotized arm; and

a selecting unit to select, from the plurality of angular-correction values, a value corresponding to the acquired identification data;

wherein the control unit carries out the angular-correction oscillation in response to the value selected by the selecting unit.

47. (new) The apparatus of claim 45, further comprising:

a device detecting an orientation of the drum; and

a comparator to compare the detected orientation with the preset orientation;

wherein the control unit carries out the angular-correction oscillation when the detected orientation diverges from the value of the preset orientation by more than a predetermined tolerance threshold.

48. (new) The apparatus of claim 39, further comprising:

an actuating unit carrying the support structure; and

a control unit operating on the actuating unit and the translation devices;

wherein the control unit causes:

translation of the belt structure toward the support structure; and

simultaneous translation of the distal half toward the support structure; and

wherein the translation of the distal half toward the support structure is substantially proportional to the translation of the belt structure toward the support structure.

49. (new) The apparatus of claim 48, wherein the control unit is programmed so that the translation of the distal half toward the support structure is twice as great as the translation of the belt structure toward the support structure.

50. (new) The apparatus of claim 48, further comprising:
a plurality of drums different from each other to be brought individually in engagement with the actuating unit.

51. (new) The apparatus of claim 48, wherein the actuating unit comprises a robotized arm supporting the drum.

52. (new) The apparatus of claim 51, wherein the drum is removably associated with the robotized arm.

53. (new) The apparatus of claim 51, further comprising:
a control unit operating on the actuating unit to submit the drum to an angular-correction oscillation to dispose a geometric axis of the drum in a preset orientation;
wherein the preset orientation is coincident with a geometric axis of the belt structure.

54. (new) The apparatus of claim 53, wherein the control unit comprises:
a memory containing a plurality of angular-correction values each related to identification data of a drum associated with the robotized arm;

an acquisition block to acquire the identification data of the drum associated with the robotized arm; and

a selecting unit to select, from the plurality of angular-correction values, a value corresponding to the acquired identification data;

wherein the control unit carries out the angular-correction oscillation in response to the value selected by the selecting unit.

55. (new) The apparatus of claim 53, further comprising:

a device detecting an orientation of the drum; and

a comparator to compare the detected orientation with the preset orientation;

wherein the control unit carries out the angular-correction oscillation when the detected orientation diverges from the value of the preset orientation by more than a predetermined tolerance threshold.